PORTA ONE®

Porta Billing 100®

MR-9

Installation Guide

www.portaone.com

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PortaBilling100 Install Guide
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Table of contents

Preface 3

1. Introduction 4

Hardware and software requirements 5

2. Installation Process 7

Pre-install 8
Step 1: Power-Up, boot order set up 8
Step 2: Insert the CD-ROM 8
Step 3: Start of installation 9
Step 4: Welcome screen 10
Step 5: Choose the installation type 10
Step 6: Disk partitioning, overview 11
Step 7: Disk partitioning, choose disk 11
Step 8: Disk partitioning, create partition 11
Step 9: Disk partitioning, boot manager 13
Step 10: Disk partitioning, slice layout 14
Step 11: Start of install 15
Step 12: Network configuration, choose the network interface 15
Step 13: Network configuration, parameters 17
Step 14: Add user accounts into the system 18
Step 15: Time zone configuration 19
Step 16: Setting up root password 22
Step 17: Prepare to reboot 23
Step 18: Check that system is able to reboot to the normal state 24
Step 19: Prepare system for transportation (optional) 24

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Preface

This document provides a general overview of the PortaBilling100 Customer Care Staff web interface.

Where to get the latest Version of this guide

The hard copy of this guide is updated at major releases only and does not always contain the latest material for enhancements occurring between minor releases. The online copy of this guide is always up-to-date and integrates the latest changes to the product. You can access the latest copy of this guide at **www.portaone.com/solutions/billing/docs**.

Conventions

This publication uses the following conventions:

- Commands and keywords are in **boldface**
- Terminal sessions, console screens, system file names are displayed in `fixed width font`

Caution means 'reader be careful'. You are capable of doing something that might result in program malfunction or loss of data.

NOTE: Means *reader take note*. Notes contain helpful suggestions or references to materials not contained in this manual

Timesaver means the described action saves time. You can save time by performing the action described in the paragraph.

Tips Means the following information might help you solve a problem

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1. Introduction

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PortaBilling runs on most of the modern UNIX operating systems (FreeBSD, Linux, Sun Solaris, etc.) assuming they are equipped with basic things such as an ANSI C compiler. However it might be difficult for the inexperienced system administrator to install and configure operation system in a way to suit all of the requirements and provide the best performance. Installing all pre-requisite software (libraries, Perl modules, MySQL server) also might be time consuming task.

The PortaBilling JumpStart installation CD provides a quick and seamless way to perform the complete server installation from scratch in less than 15 minutes! It contains installation media for FreeBSD 4.9, with all the necessary packages and PortaBilling itself.

Installation wizard uses a text-mode GUI. Use arrow keys to change your selection, "**Tab**" to move between the fields and "**Enter**" to make a choice.

Hardware and software requirements

Recommended configuration:

- Pentium 4 CPU 2.8 GHz
- Motherboard with 533MHz/800MHz system bus support
- 1 GB of RAM

Make sure that you have your servers installed and equipped with all the required hardware, notably:

- Network card
- CD-ROM (in case of the IDE CD-ROM it is recommended to have it connected as a slave on the secondary IDE channel)
- Video adapter/monitor/keyboard (required only during the installation process)
- At least one disk drive
- USB slot (on the master server)

Please check that other hardware installed in your server (such as network adapter, RAID controller, etc) is support by the FreeBSD. You can check this at the FreeBSD web site **http://www.freebsd.org**.

During the installation you will be prompted for parameters of the network configuration. Please make a decision on this matter before the installation; consult your network administrator if necessary. It is possible

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that you will have to perform the installation while network is not yet available (for example in your office while servers will be placed in the server hosting center), but you need to enter the correct data anyway. Please have prepared:

- Planned hostnames and IP addresses of the master and slave servers
- Subnet mask and the address of the default gateway
- Address of your DNS server

If you have hardware RAID controller available in your system, configure the RAID array. Recommended configurations (depending on the amount of hard drives in the system):

- 2 disks – RAID (mirroring)
- 3 disks – RAID 1 (mirroring) on the first two disks, third one left as a hot spare
- 4 disks – RAID 1+0 (mirroring + striping)
- More than 4 disks – RAID 1+0 (mirroring + striping) on the first four disks, others left as a hot spare

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2. Installation Process

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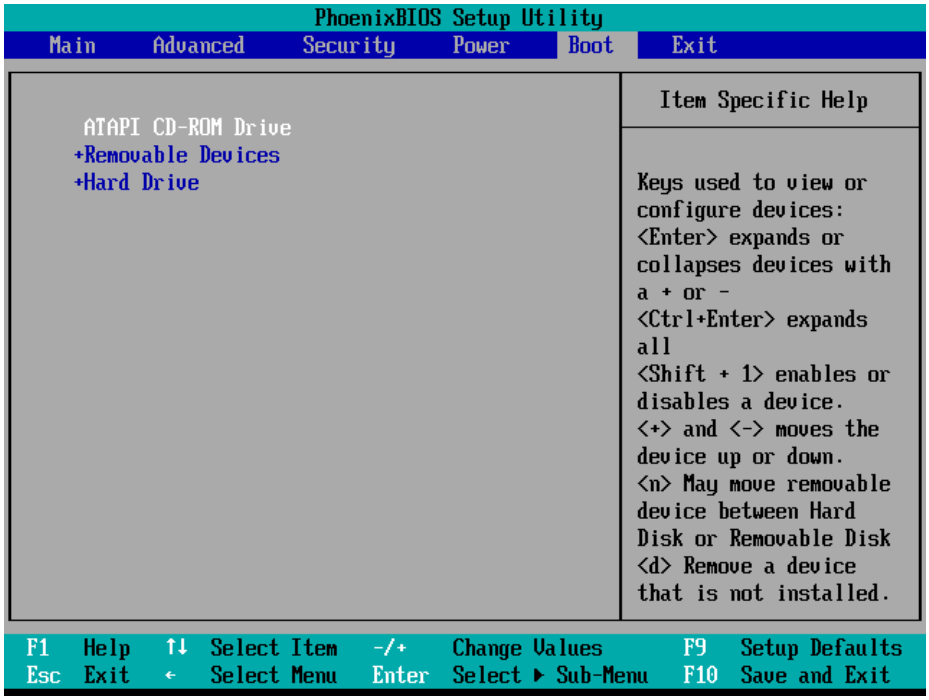
Pre-install

Place the USB dongle key you have received with your PortaBilling installation CD into the USB slot on your master server.

Step 1: Power-Up, boot order set up

Power-up the computer which you plan to use as a server. Enter the BIOS setup and make sure that CD-ROM is first in the list of boot devices. If you install dual-server configuration, start your installation with a master server.


PhoenixBIOS Setup Utility
Main
Advanced
Security
Power
Boot
Exit
ATAPI CD-ROM Drive
+Removable Devices
+Hard Drive
Item Specific Help
Keys used to view or configure devices:
<Enter> expands or collapses devices with a + or -
<Ctrl+Enter> expands all
<Shift + 1> enables or disables a device.
<+> and <-> moves the device up or down.
<n> May move removable device between Hard Disk or Removable Disk
<d> Remove a device that is not installed.
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ← Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit

Note: this image is only an example. The BIOS on your system might look different.

Save your changes and exit.

Step 2: Insert the CD-ROM

While rebooting the system, insert the PortaBilling installation CD in the CD-ROM drive. If you did not insert it soon enough and get a "no operation system" error (or a previously installed operating system starts

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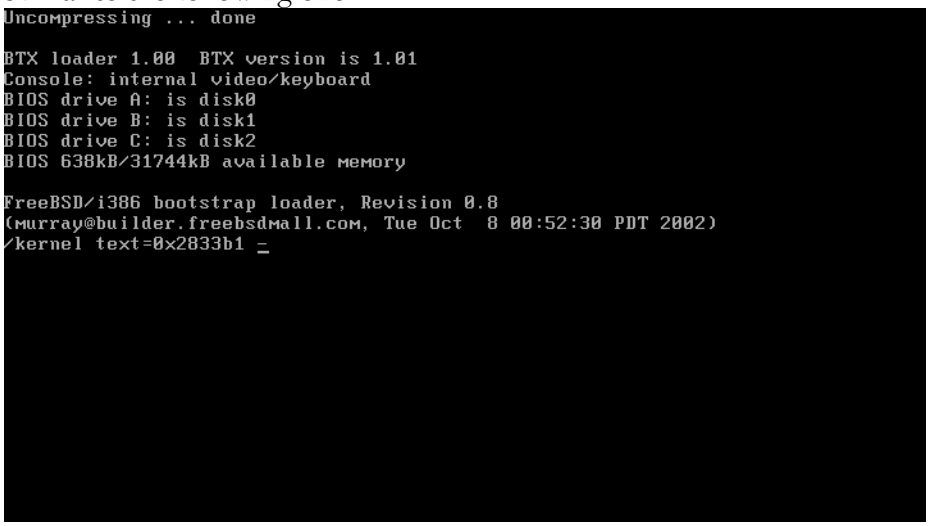
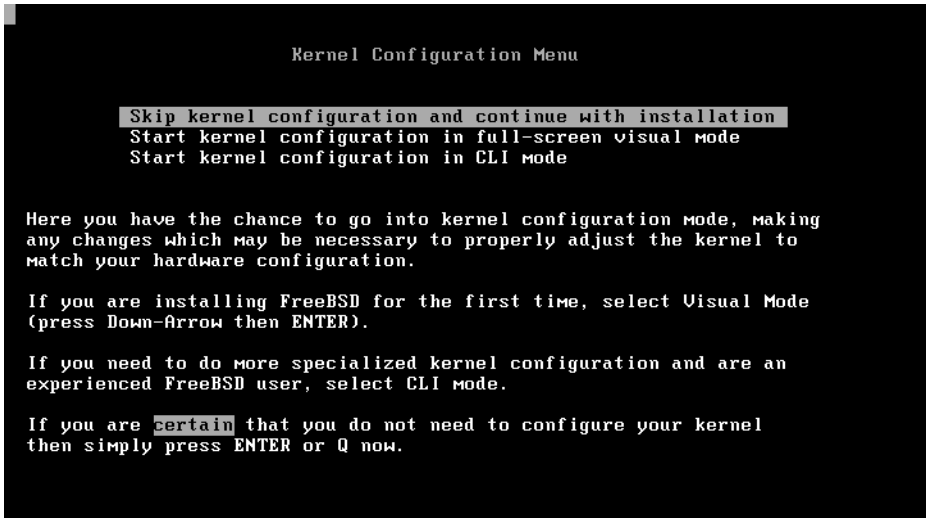
its boot up process) then press the "Reset" button, and ensure that you are booting from the CD.

Step 3: Start of installation

You will know that JumpStart installation has started if you see screen similar to the following one


Uncompressing ... done
BTX loader 1.00 BTX version is 1.01
Console: internal video/keyboard
BIOS drive A: is disk0
BIOS drive B: is disk1
BIOS drive C: is disk2
BIOS 638kB/31744kB available memory
FreeBSD/i386 bootstrap loader, Revision 0.8
(murray@builder.freebsdmall.com, Tue Oct 8 00:52:30 PDT 2002)
/kernel text=0x2833b1

After the installation kernel is loaded you will see following menu:


Kernel Configuration Menu
Skip kernel configuration and continue with installation
Start kernel configuration in full-screen visual mode
Start kernel configuration in CLI mode
Here you have the chance to go into kernel configuration mode, making any changes which may be necessary to properly adjust the kernel to match your hardware configuration.
If you are installing FreeBSD for the first time, select Visual Mode (press Down-Arrow then ENTER).
If you need to do more specialized kernel configuration and are an experienced FreeBSD user, select CLI mode.
If you are certain that you do not need to configure your kernel then simply press ENTER or Q now.

Choose the first item in the menu and press "**Enter**" to go on.

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Step 4: Welcome screen

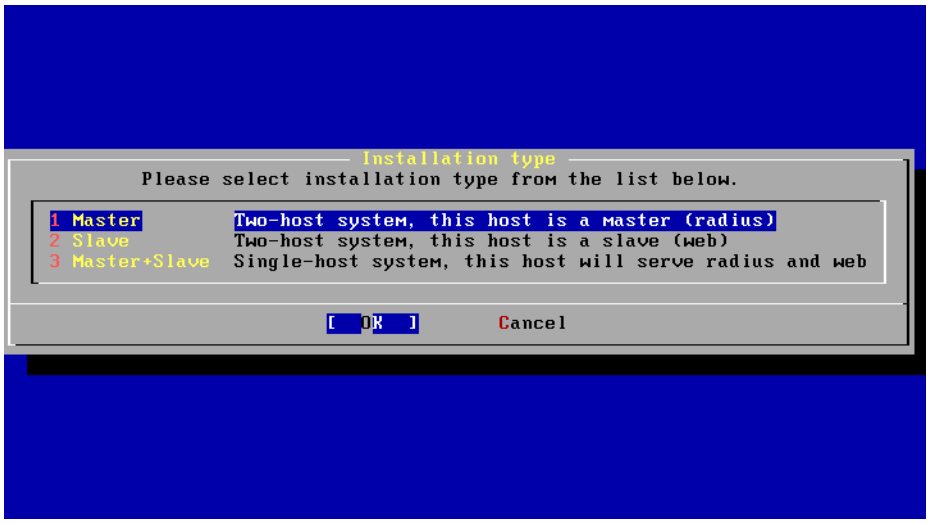
After that, the installation process starts. First, you will see PortaBilling welcome screen:

Message
Welcome to the Porta Billing installation program!
This wizard will guide you through the rest of
installation process.
(100%)
[OK]
[Press enter or space]

Press "**Enter**" to continue to disk partitioning.

Step 5: Choose the installation type

Next you will have to choose installation type. This will determine which packages will be installed on this host. If you are installing dual-server configuration, it is recommended to install master server first.


Installation type
Please select installation type from the list below.
1 Master Two-host system, this host is a master (radius)
2 Slave Two-host system, this host is a slave (web)
3 Master+Slave Single-host system, this host will serve radius and web
[OK]
Cancel

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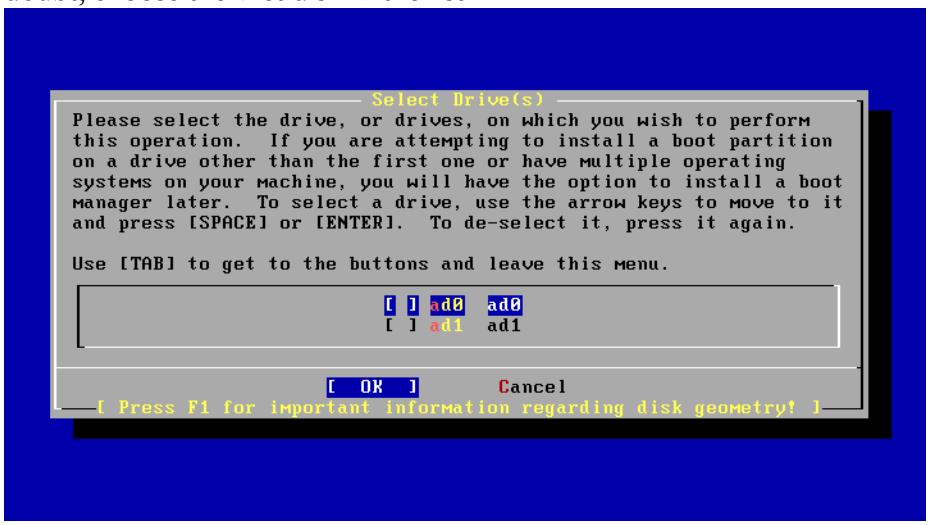
Step 6: Disk partitioning, overview

Now you will have to allocate the hard drive partitions where FreeBSD and PortaBilling will be installed. If you have only one hard drive in your system or you have configured your available disks into a single volume array then please the next step and go directly to **0**.

Step 7: Disk partitioning, choose disk

If you have more than one disk in your system, you will have to choose the disk on which you would like to create the FreeBSD partitions. If in doubt, choose the first disk in the list.


Select Drive(s)
Please select the drive, or drives, on which you wish to perform this operation. If you are attempting to install a boot partition on a drive other than the first one or have multiple operating systems on your machine, you will have the option to install a boot manager later. To select a drive, use the arrow keys to move to it and press [SPACE] or [ENTER]. To de-select it, press it again.
Use [TAB] to get to the buttons and leave this menu.
[ ] ad0 ad0
[ ] ad1 ad1
[OK]
Cancel
[Press F1 for important information regarding disk geometry!]

Step 8: Disk partitioning, create partition

Now you have to create the partition, the continuous area on disk used to store all of the operating system data. With the "**unused**" entry highlighted, press "**C**" to create a new partition.

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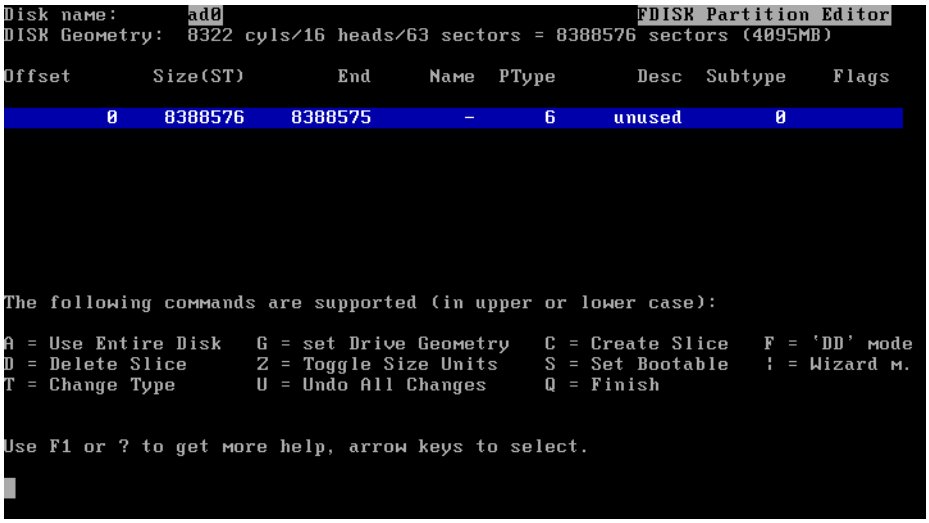
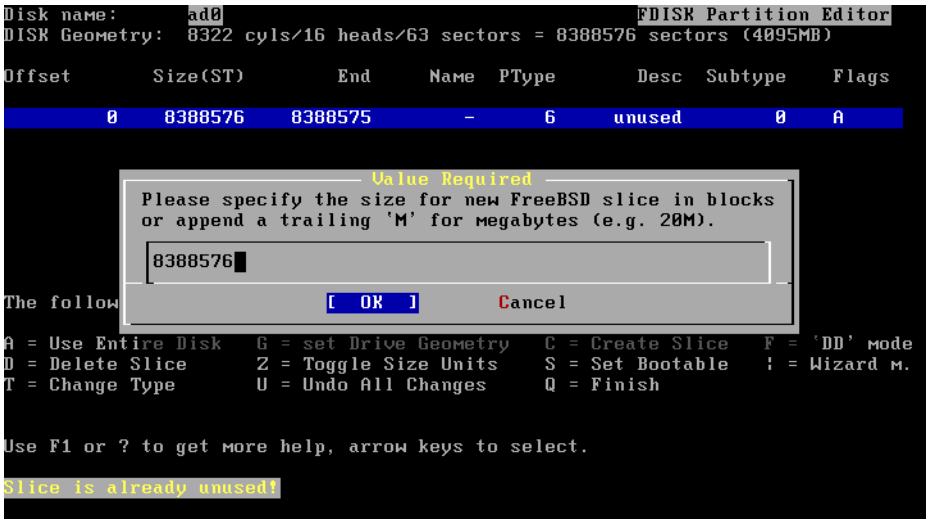

Disk name: ad0 FDISK Partition Editor
DISK Geometry: 8322 cyls/16 heads/63 sectors = 8388576 sectors (4095MB)
Offset Size(ST) End Name PType Desc Subtype Flags
0 8388576 8388575 - 6 unused 0
The following commands are supported (in upper or lower case):
A = Use Entire Disk G = set Drive Geometry C = Create Slice F = 'DD' mode
D = Delete Slice Z = Toggle Size Units S = Set Bootable ! = Wizard m.
T = Change Type U = Undo All Changes Q = Finish
Use F1 or ? to get more help, arrow keys to select.

When prompted for the partition size, just press "**Enter**", this will allocate all available space on the disk for the FreeBSD. Press "**Q**" to exit this configuration screen.


Disk name: ad0 FDISK Partition Editor
DISK Geometry: 8322 cyls/16 heads/63 sectors = 8388576 sectors (4095MB)
Offset Size(ST) End Name PType Desc Subtype Flags
0 8388576 8388575 - 6 unused 0 A
Value Required
Please specify the size for new FreeBSD slice in blocks
or append a trailing 'M' for megabytes (e.g. 20M).
8388576
[OK] Cancel
A = Use Entire Disk G = set Drive Geometry C = Create Slice F = 'DD' mode
D = Delete Slice Z = Toggle Size Units S = Set Bootable ! = Wizard m.
T = Change Type U = Undo All Changes Q = Finish
Use F1 or ? to get more help, arrow keys to select.
Slice is already unused!

When asked about partition type, press "**Enter**", so partition will be created with the default FreeBSD type.

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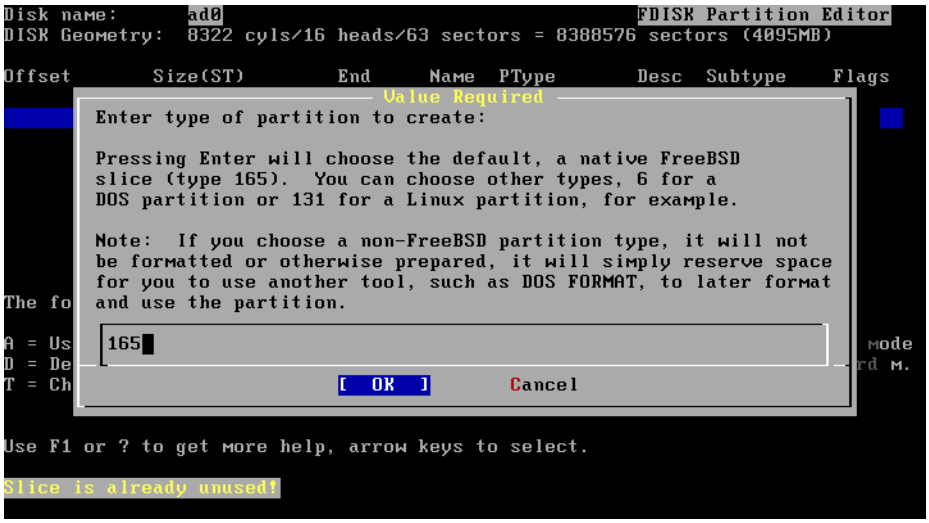
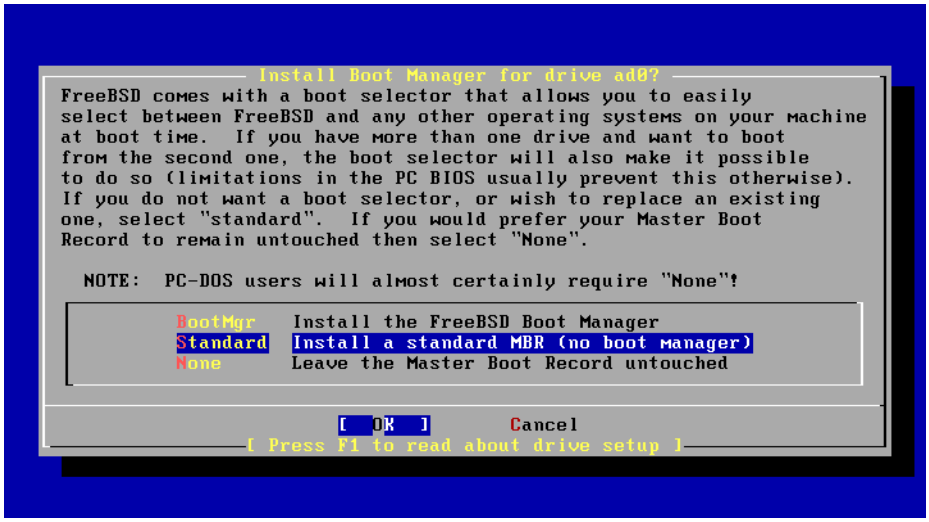

Disk name: ad0 FDISK Partition Editor
DISK Geometry: 8322 cyls/16 heads/63 sectors = 8388576 sectors (4095MB)
Offset Size(ST) End Name PType Desc Subtype Flags
Value Required
Enter type of partition to create:
Pressing Enter will choose the default, a native FreeBSD slice (type 165). You can choose other types, 6 for a DOS partition or 131 for a Linux partition, for example.
Note: If you choose a non-FreeBSD partition type, it will not be formatted or otherwise prepared, it will simply reserve space for you to use another tool, such as DOS FORMAT, to later format and use the partition.
165
[OK] Cancel
Use F1 or ? to get more help, arrow keys to select.
Slice is already unused!

After the partition has been created, make sure it is marked as a bootable partition.

In order to do this, select the new partition using cursor movement keys and press "**S**". Press "**Q**" to exit this configuration screen.

Step 9: Disk partitioning, boot manager

The FreeBSD boot manager will let you to boot one of the multiple operating systems installed on your server. If you are not planning to run anything else than FreeBSD and PortaBilling on your server – choose "Standard".


Install Boot Manager for drive ad0?
FreeBSD comes with a boot selector that allows you to easily select between FreeBSD and any other operating systems on your machine at boot time. If you have more than one drive and want to boot from the second one, the boot selector will also make it possible to do so (limitations in the PC BIOS usually prevent this otherwise). If you do not want a boot selector, or wish to replace an existing one, select "standard". If you would prefer your Master Boot Record to remain untouched then select "None".
NOTE: PC-DOS users will almost certainly require "None"!
BootMgr Install the FreeBSD Boot Manager
Standard Install a standard MBR (no boot manager)
None Leave the Master Boot Record untouched
[OK] Cancel
[Press F1 to read about drive setup]

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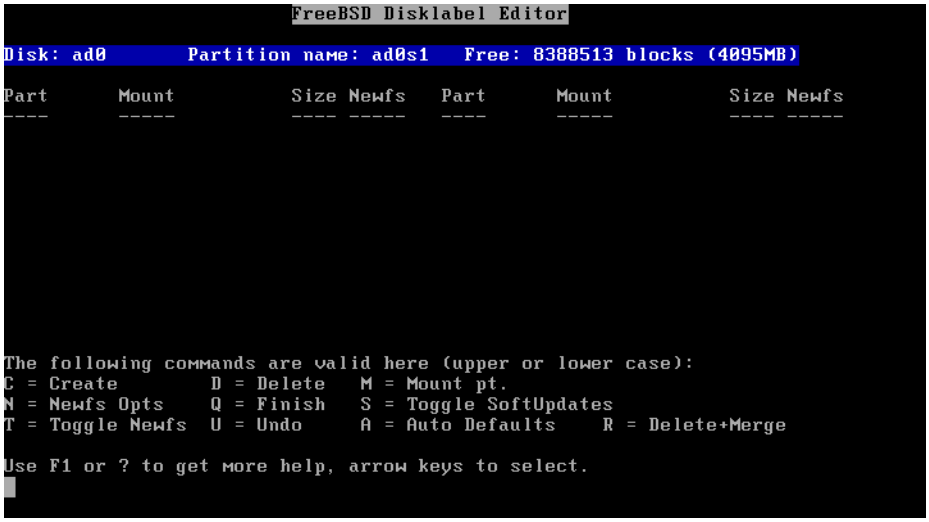
Step 10: Disk partitioning, slice layout

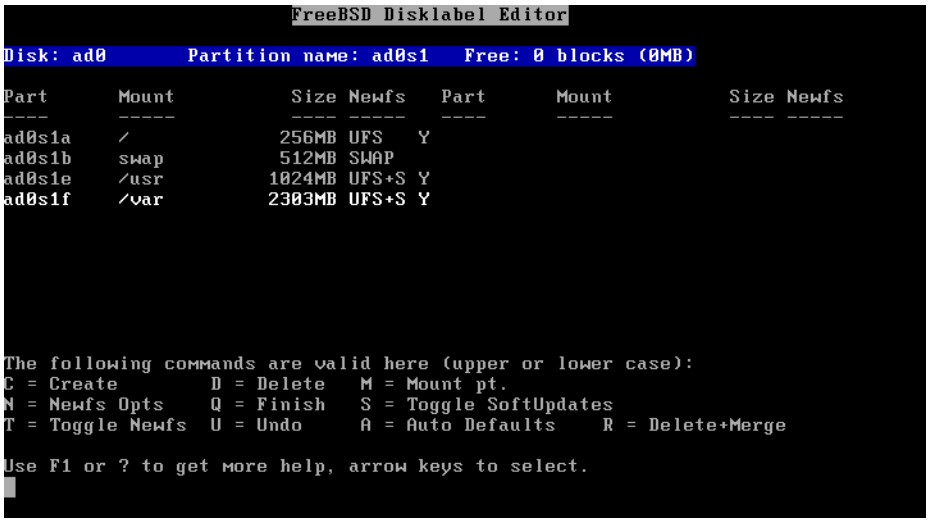
Within the FreeBSD partition you must create areas used to hold different file systems. These are called slices.


FreeBSD Disklabel Editor
Disk: ad0 Partition name: ad0s1 Free: 8388513 blocks (4095MB)
Part Mount Size Newfs Part Mount Size Newfs
The following commands are valid here (upper or lower case):
C = Create D = Delete M = Mount pt.
N = Newfs Opts Q = Finish S = Toggle SoftUpdates
T = Toggle Newfs U = Undo A = Auto Defaults R = Delete+Merge
Use F1 or ? to get more help, arrow keys to select.

Press "**A**" to use install wizard default layout. If you wish to have custom slice layout, PortaBilling recommended slice set up is:

- / (root) filesystem – 256MB
- swap – equal to the amount of RAM
- /usr filesystem – 2GB
- /var filesystem – rest of the available space

When finished you should see something similar to the following screen:


FreeBSD Disklabel Editor
Disk: ad0 Partition name: ad0s1 Free: 0 blocks (0MB)
Part Mount Size Newfs Part Mount Size Newfs
ad0s1a / 256MB UFS Y
ad0s1b swap 512MB SWAP
ad0s1e /usr 1024MB UFS+S Y
ad0s1f /var 2303MB UFS+S Y
The following commands are valid here (upper or lower case):
C = Create D = Delete M = Mount pt.
N = Newfs Opts Q = Finish S = Toggle SoftUpdates
T = Toggle Newfs U = Undo A = Auto Defaults R = Delete+Merge
Use F1 or ? to get more help, arrow keys to select.

Press "**Q**" to proceed with the installation.

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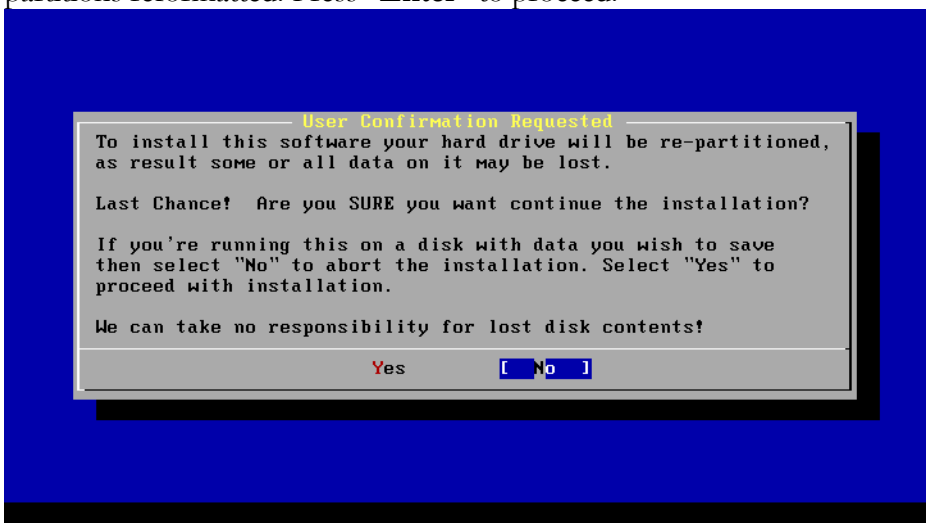
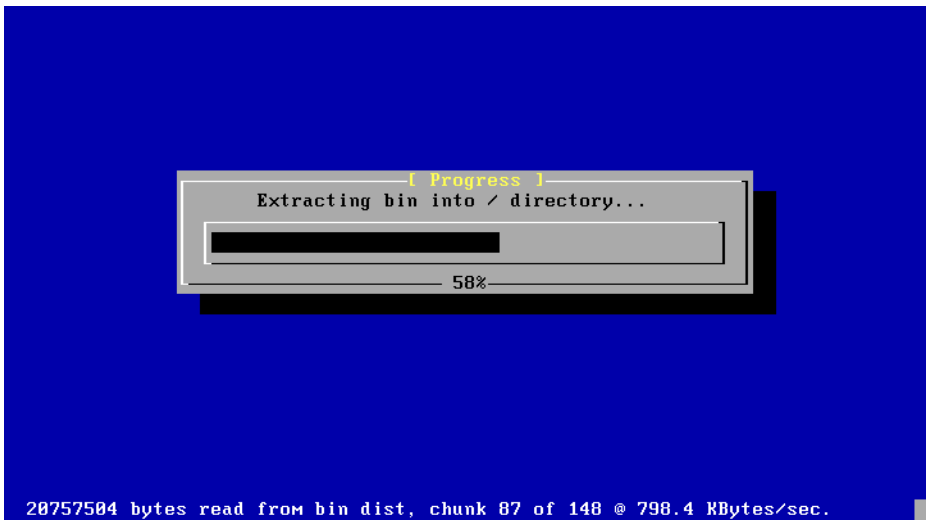
Step 11: Start of install

You confirmation is required before disk layout will be changed and partitions reformatted. Press "**Enter**" to proceed.


User Confirmation Requested
To install this software your hard drive will be re-partitioned,
as result some or all data on it may be lost.
Last Chance! Are you SURE you want continue the installation?
If you're running this on a disk with data you wish to save
then select "No" to abort the installation. Select "Yes" to
proceed with installation.
We can take no responsibility for lost disk contents!
Yes
[No]

During the installation you will see screens similar to the following:



Step 12: Network configuration, choose the network interface

Choose the primary network interface for you server, the interface through which server will communicate with the rest of the Internet, including your VoIP gateways or web clients. Your Ethernet network adapter should be on the top of the list. If it is not there, perhaps the adapter you have in your server is not supported by FreeBSD.

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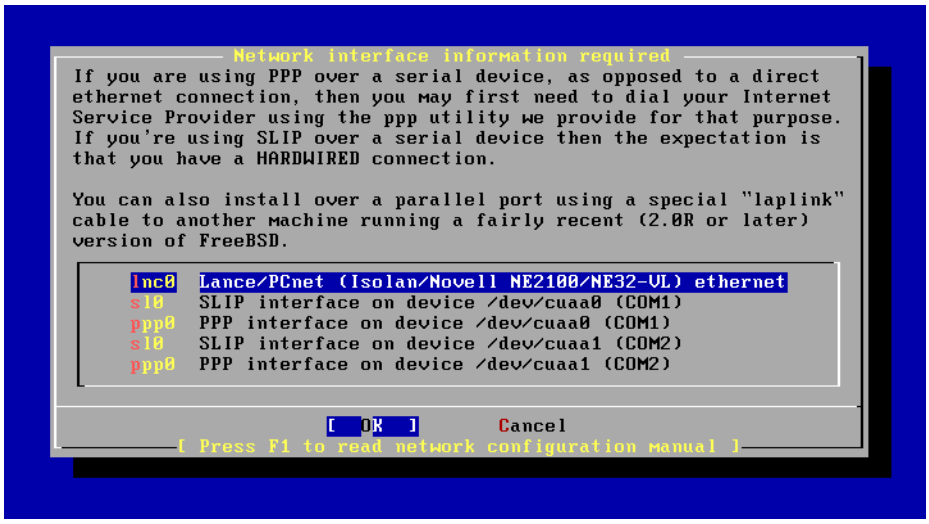
If asked if you wish to use DHCP configuration on the interface, answer no.


Network interface information required
If you are using PPP over a serial device, as opposed to a direct ethernet connection, then you may first need to dial your Internet Service Provider using the ppp utility we provide for that purpose. If you're using SLIP over a serial device then the expectation is that you have a HARDWIRED connection.
You can also install over a parallel port using a special "laplink" cable to another machine running a fairly recent (2.0R or later) version of FreeBSD.
lnc0 Lance/PCnet (Isolan/Novell NE2100/NE32-VL) ethernet
sl0 SLIP interface on device /dev/cuaa0 (COM1)
ppp0 PPP interface on device /dev/cuaa0 (COM1)
sl0 SLIP interface on device /dev/cuaa1 (COM2)
ppp0 PPP interface on device /dev/cuaa1 (COM2)
[OK]
Cancel
[Press F1 to read network configuration manual]

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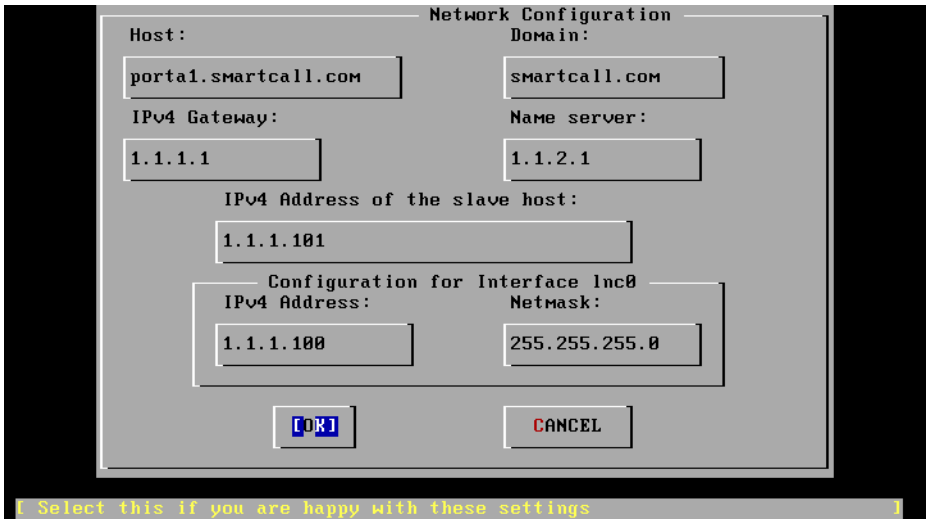
Step 13: Network configuration, parameters

You will need to enter network parameters for your server, press "**Enter**" when done.

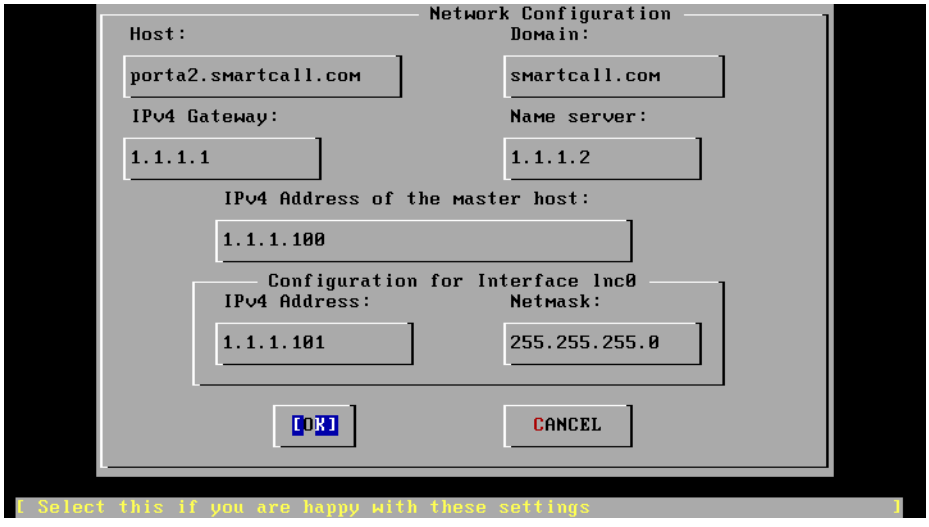
Master server install

For the master server this dialog will appear as follows:



Slave server install

The dialogs are the same, but you will have to enter IP address of the master server:



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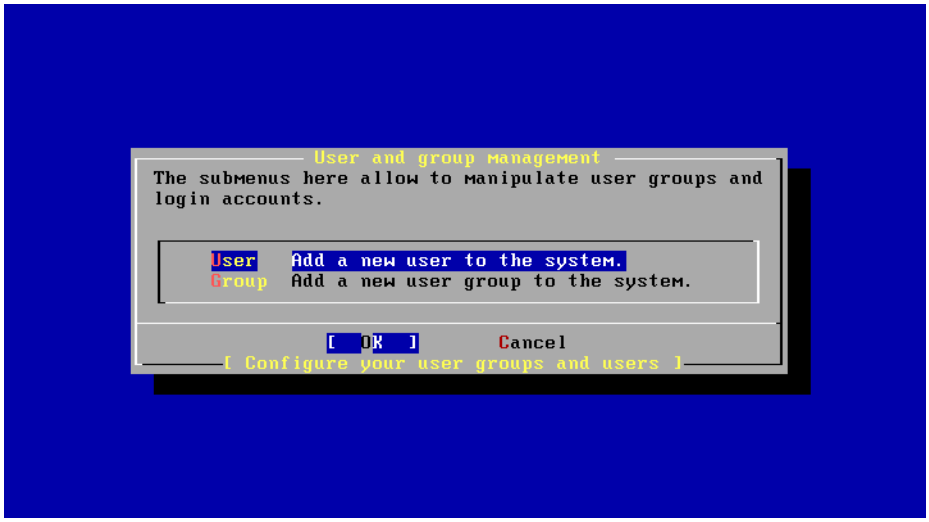
Single-host install

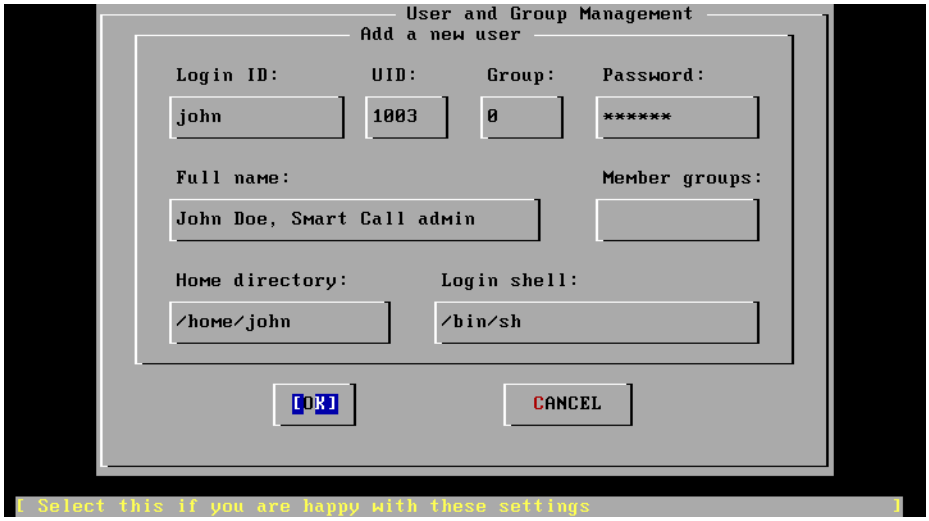
The dialog for the single host install is similar to the ones above, but you do not need enter information about master/slave server addresses.

Step 14: Add user accounts into the system

After the required packages have been installed you can begin performing the configuration tasks. First you will be required to add user accounts to the system. Your staff may use these accounts to log in to the system. (It is not recommended to use the **root** account when logging in remotely.) If you plan to add users, choose the first menu item and press "**Enter**". Once you have finished the user creation process, press "**Tab**" once (to take you to the "**Cancel**" button) and then press "**Enter**".


User and group management
The submenus here allow to manipulate user groups and login accounts.
User Add a new user to the system.
Group Add a new user group to the system.
[OK] Cancel
[Configure your user groups and users]

The dialog for creating a new user is shown below:



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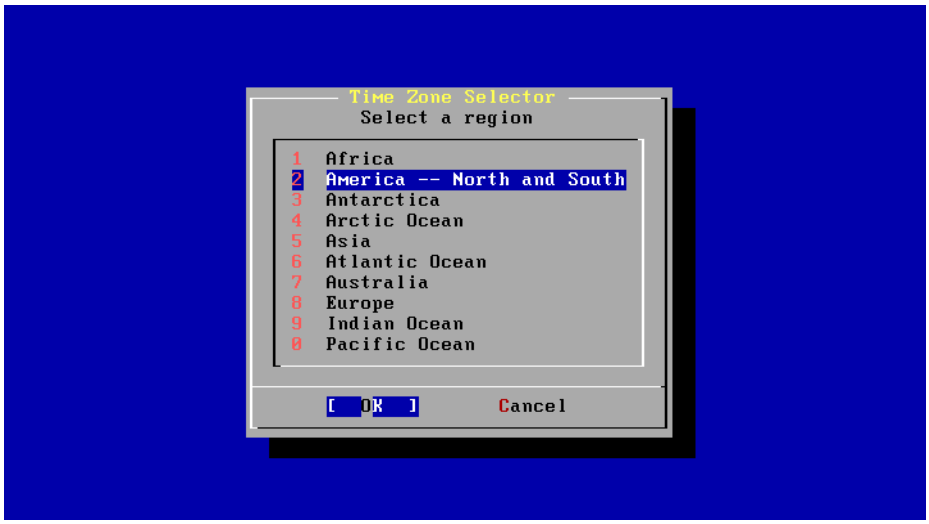
Step 15: Time zone configuration

Having you clock adjusted properly and time zone set up correctly is essential to achieve accurate billing. Normally people choose the time zone where the server physically located or time zone which is local to majority of the system administrators.
At first, choose if you have your server clock set up to the UTC or local time. We recommend using local time, so please choose "**No**" here.

Select local or UTC (Greenwich Mean Time) clock
Is this machine's CMOS clock set to UTC? If it is set to local time, or you don't know, please choose NO here!
Yes
[No]

Next, choose the region you are in:



And then choose your country:

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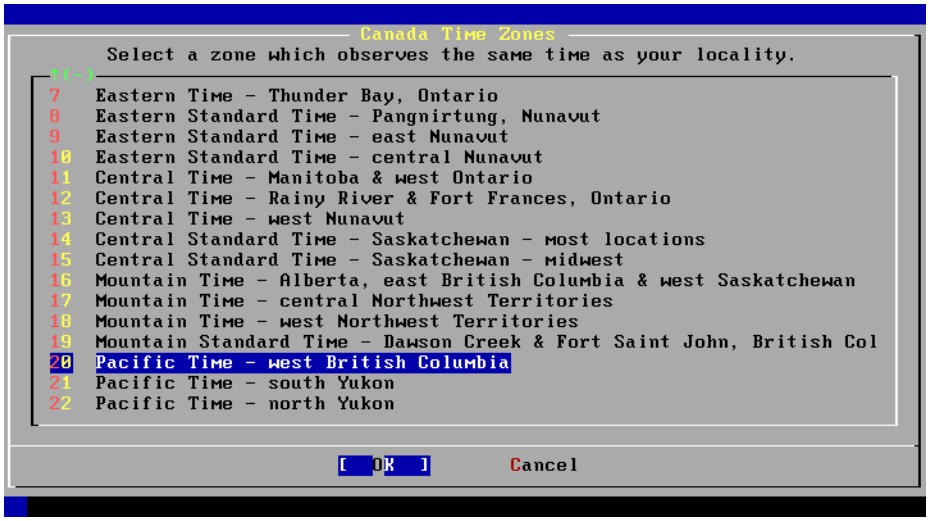
If there is more than one time zone in the given country you will have to specify the region:


Canada Time Zones
Select a zone which observes the same time as your locality.
7 Eastern Time - Thunder Bay, Ontario
8 Eastern Standard Time - Pangnirtung, Nunavut
9 Eastern Standard Time - east Nunavut
10 Eastern Standard Time - central Nunavut
11 Central Time - Manitoba & west Ontario
12 Central Time - Rainy River & Fort Frances, Ontario
13 Central Time - west Nunavut
14 Central Standard Time - Saskatchewan - most locations
15 Central Standard Time - Saskatchewan - midwest
16 Mountain Time - Alberta, east British Columbia & west Saskatchewan
17 Mountain Time - central Northwest Territories
18 Mountain Time - west Northwest Territories
19 Mountain Standard Time - Dawson Creek & Fort Saint John, British Col
20 Pacific Time - west British Columbia
21 Pacific Time - south Yukon
22 Pacific Time - north Yukon
[OK]
Cancel

Please check the suggested time zone, and confirm:

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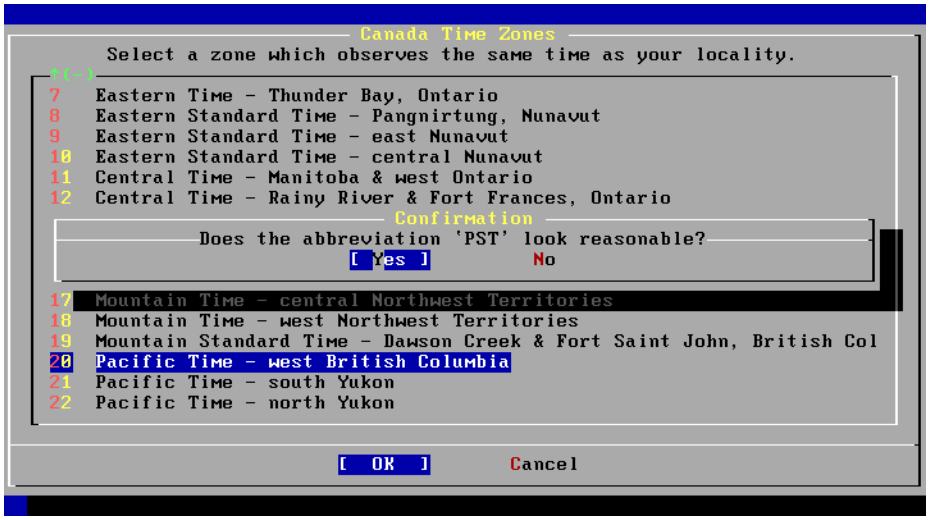
Canada Time Zones
Select a zone which observes the same time as your locality.
7 Eastern Time - Thunder Bay, Ontario
8 Eastern Standard Time - Pangnirtung, Nunavut
9 Eastern Standard Time - east Nunavut
10 Eastern Standard Time - central Nunavut
11 Central Time - Manitoba & west Ontario
12 Central Time - Rainy River & Fort Frances, Ontario
Confirmation
Does the abbreviation 'PST' look reasonable?
[Yes] No
17 Mountain Time - central Northwest Territories
18 Mountain Time - west Northwest Territories
19 Mountain Standard Time - Dawson Creek & Fort Saint John, British Col
20 Pacific Time - west British Columbia
21 Pacific Time - south Yukon
22 Pacific Time - north Yukon
[OK] Cancel

NOTE: Always choose the same time zone when installing master and slave server. The server time zone, set up during the installation, should not be changed later, since it will affect CDR data stored in the database. This is actually never required, since every user of the web interface will see data in his preferred time zone anyway – so it does not matter at all for your users which time zone is on the server.

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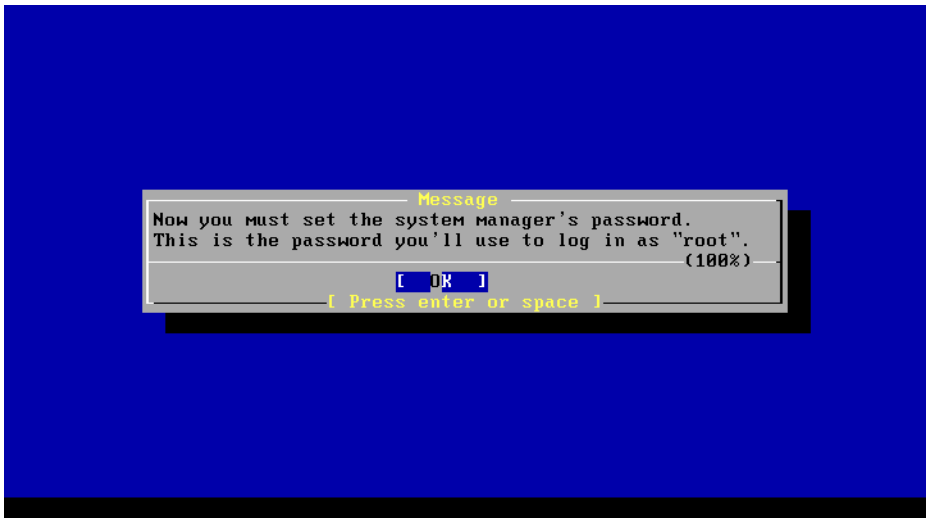
Step 16: Setting up root password

Choosing the super user password is very important. You will need it to perform system administration or system recovery. Choose a password which is difficult to guess or crack.


Message
Now you must set the system manager's password.
This is the password you'll use to log in as "root".
(100%)
[OK]
[Press enter or space]

Changing local password for root.
New password:
Please enter a password at least 6 characters in length.
New password:
Retype new password:

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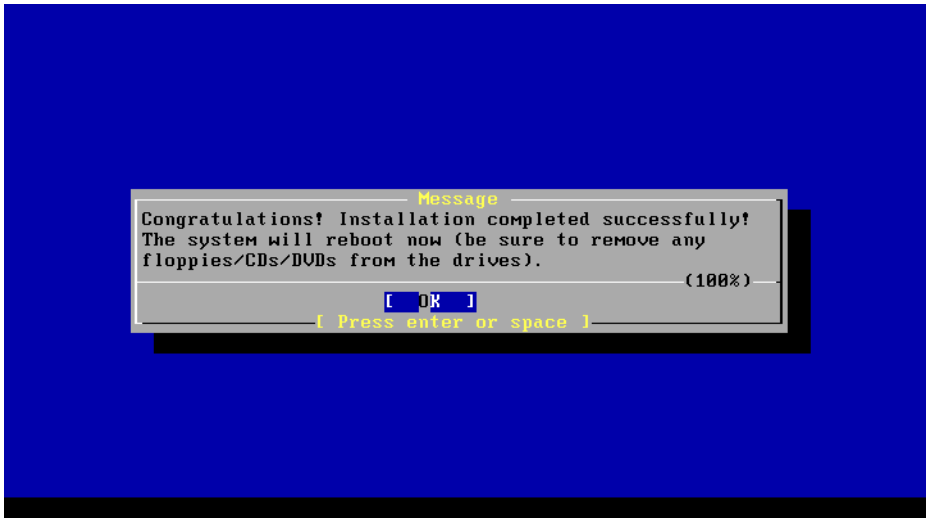
Step 17: Prepare to reboot

Installation is finished now. Press "**Enter**" when you reach the following screen. After the system begins its reboot process remove installation CD from the CD-ROM. Do not forget to enter the BIOS again and change priority of boot devices so that the hard drive will be first attempted boot device. (This ensures a quicker reboot when recycling the server.)


Message
Congratulations! Installation completed successfully!
The system will reboot now (be sure to remove any
floppies/CDs/DVDs from the drives).
(100%)
[OK]
[Press enter or space]

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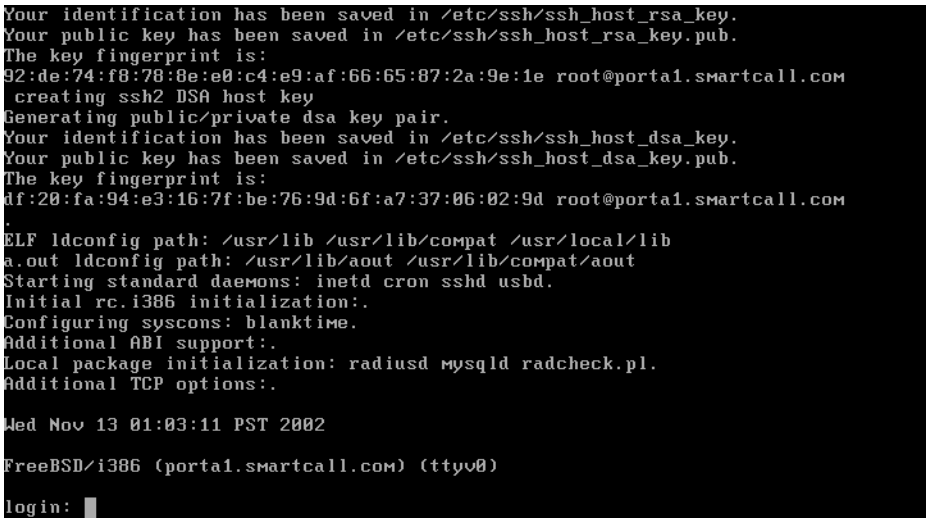
Step 18: Check that system is able to reboot to the normal state

It is good idea to ensure that the system is in a stable state and that on reboot it returns to normal operation without intervention – especially if there will be no keyboard or other peripherals attached. The screen after a normal reboot should look like the following:


Your identification has been saved in /etc/ssh/ssh_host_rsa_key.
Your public key has been saved in /etc/ssh/ssh_host_rsa_key.pub.
The key fingerprint is:
92:de:74:f8:78:8e:e0:c4:e9:af:66:65:87:2a:9e:1e root@porta1.smartcall.com
creating ssh2 DSA host key
Generating public/private dsa key pair.
Your identification has been saved in /etc/ssh/ssh_host_dsa_key.
Your public key has been saved in /etc/ssh/ssh_host_dsa_key.pub.
The key fingerprint is:
df:20:fa:94:e3:16:7f:be:76:9d:6f:a7:37:06:02:9d root@porta1.smartcall.com
.
ELF ldconfig path: /usr/lib /usr/lib/compat /usr/local/lib
a.out ldconfig path: /usr/lib/aout /usr/lib/compat/aout
Starting standard daemons: inetd cron sshd usbd.
Initial rc.i386 initialization:.
Configuring syscons: blanktime.
Additional ABI support:.
Local package initialization: radiusd mysqld radcheck.pl.
Additional TCP options:.
Wed Nov 13 01:03:11 PST 2002
FreeBSD/i386 (porta1.smartcall.com) (ttyv0)
login:

Press **Ctrl + Alt +Del** if you need to reboot.

Step 19: Prepare system for transportation (optional)

If you need to transport the system to another location (e.g. hosting center) or otherwise power down the system safely:

- Wait until system finishes to boot
- Log in as root
- Type shutdown –p now
- Wait until either the system powers down on its own, or until the "The operating system has halted" message appears, and then power off the server.

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